deaf from birth, or became so soon afterwards, the other three were the subjects of various bodily and mental infirmities.

Dr. Chazarain, in a thesis laid before the Faculty of Medicine of Montpellier, has brought together various facts which illustrate the same principle. From the position he held during several years in the Deaf and Dumb Institution of Bordeaux, he had peculiar advantages for investigating this point. Out of 39 boys in this institution, deaf and dumb from birth,

Were the offspring of relatives . .	6	
Among whom 1 had	2	brothers deaf and dumb.
" 1 had	3	" "
Total . . .	11	

Of 27 girls deaf and dumb from birth, 9 were the offspring of relatives; of this number 6 had among them 7 brothers or sisters affected with the same infirmity, making in all 16. It will at once be seen that the number of the individuals belonging to the category of the marriages of relatives is increased by a half if the brothers and sisters affected in the same way are taken into consideration, whilst amongst those, the father and mother of whom were not related, there is barely a sixth to be added.

At present it is known that France possesses 29,512 deaf and dumb individuals. According to their distribution in the different localities it appears that the greatest number is found in the mountainous departments where means of communication are difficult. The department of Ariège has the highest figure, 161 to 100,000 inhabitants. We know that in Ariège the marriages of relatives are so frequent that the priests of that department have several times applied to the Faculty of Medicine of Montpellier to issue an authoritative reprehension of such unions. The faculty has no doubt been right in declining to do so, but the very request shows how important the matter was considered.—*Edin. Med. Journ.*, Jan. 1862, from *Gaz. Hebdom.*, vol. vii. No. 37.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

60. *Rupture of Heart by External Violence, without breach of Skin.*—Dr. J. H. Ward relates (*Med. Times and Gaz.*, Jan. 25, 1862) the following extraordinary example of this, which is interesting in a medico-legal point of view:—

"In the month of Nov. 1861, I was hastily summoned to a man, aged 26 years, whom my informant stated had shot himself with a pistol. On my arrival I found him extended upon a couch, dead, he having lived about ten minutes after the fatal shot was heard.

"When first seen, his shirt was on fire from the close proximity of the weapon when discharged, and his flannel vest was perforated. No external marks of violence were visible, except a slight mark on the skin beneath the left nipple, corresponding exactly with the opening in the vest. The mark was undoubtedly caused by the loop-end of a pistol-key, used for taking the firearm to pieces, which was picked up, along with the pistol, immediately after the report was heard. The hollow part or barrel of the key was partially filled with charred paper.

"Two days afterwards, I was requested by the coroner to make a post-mortem examination, which revealed the following singular facts: The features presented an unusually pale, even blanched, appearance; but besides this, and the mark on the chest already alluded to, there was nothing else of a remarkable character. On reflecting the integuments, the intercostal muscles between the fifth and sixth ribs on the left side, and underneath the external mark, were found to be perforated sufficiently to admit the finger; and on removing the sternum, the pericardium was found quite intact, but unusually distended. On cutting into the pericardial cavity, a considerable quantity of coagula and serum issued forth.

The heart was next carefully examined, and the left ventricle was discovered to be ruptured, longitudinally, to the extent of an inch on its anterior surface; in size, texture, and condition, the heart was perfectly healthy.

"It is remarkable that the skin was not perforated, no rib broken, the pericardium entire, and yet the intercostal muscles and left ventricle were perforated. The burning of the clothes, to a considerable extent, shows that the pistol was held close to the chest; and that what is technically called 'windage,' must have been considerable. In such cases the injury may be supposed to have been caused by a spent projectile. I am not aware that there is a parallel case on record. Many points of interest will occur to the students of forensic and military surgery; but I shall at present content myself with the above simple narration, only just pointing out, however, that though various records show that rupture of the heart takes place in the right ventricle almost three times as often as in the left, yet in this case the healthy structure of the left ventricle succumbed to the force.

"I may just add, in conclusion, that the heart was submitted to the Medical Section of the Royal Manchester Institution, at the December meeting of last year."

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61. *Poisonous Effects of Coal Gas upon the Animal System.*—Dr. C. J. B. ALDIS read a paper on this subject before the Royal Medical and Chirurgical Soc. (Jan. 14, 1862). The author was induced to make the present inquiry in consequence of the examination of gas, as to its purity, now forming an important branch of the public health. He also wished to ascertain whether Cannel gas destroyed life sooner than common gas, since this question had arisen at a recent coroner's inquest. The third and fourth objects were, to counteract, if possible, by publicity, the want of precaution often displayed by gas-fitters in the discharge of their duties, and to try means for their recovery when rendered insensible. The following are the results of some experiments made by the author, Mr. F. G. Evans, engineer of the Chartered Gas Company, and Mr. Bannister, assistant engineer at the works in Horseferry-road, Westminster, November 8, 1861: A rat was first killed by means of a sharpened file thrust into the brain, for the purpose of comparing the appearance of some of the internal organs with those of others destroyed by the gases. The eyelids were closed; the lungs collapsed, and of a whitish colour; both ventricles of the heart contained black coagulated blood. Six experiments were then made—two with Cannel gas, three with common gas, and one with foul gas—upon rats, which were placed, in succession, under an inverted glass vessel, into which the gases were passed through a $\frac{3}{8}$-inch cock and tubing with a $\frac{1}{2}$-inch bore. The animals soon began to gasp, and became insensible after slight struggling. They lay motionless for a few seconds, when death supervened upon convulsive movements. The eyes were open and projected. The outer surface of the skull was exceedingly red in all that were examined, and dark fluid blood escaped from them. The superficial vessels on the surface of the brain were pinkish, and some were empty; the substance of the brain was pale. The lungs were collapsed, and of a pink colour; the heart was distended with darkish fluid blood; and the abdominal veins were congested. The eyes of the rat exposed to foul gas did not project so much as in the other examples. On opening the body a strong smell of sulphuretted hydrogen gas escaped. The brain and lungs were much congested, and of a brownish colour; the heart was greatly distended with dark fluid blood, the auricles being nearly black; and the abdominal veins were distended with dark blood. On November 6, the author examined six rats killed at the works in the same manner as the last six just mentioned, all of which had died with their eyes open. The post-mortem appearances were similar. In remarking upon the physiological results of the experiments, it may be observed that death ensued from the combined effect of different coal gases, the chief constituents of which are, after purification, light carburetted hydrogen, hydrogen, carbonic oxide, carbonic acid, oxygen, nitrogen, and the condensible hydro-carbons; whereas the foul gas contained, in addition, ammonia and sulphuretted hydrogen. Again, Cannel coal gas contains more hydro-carbon vapours than common gas, for which reason it probably destroyed life more quickly than the common